

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-4 (canceled)

Claim 5 (currently amended): ~~Thiophene oligomers~~ A thiophene oligomer, characterized in that ~~they have~~ it has at least one functional group able to form a covalent bond with a biological ~~molecules~~ molecule and ~~are~~ is excitable in the visible and ultraviolet light region without altering the biological activity of the biological ~~molecules~~ molecule;

where the functional group is NCS;

where the NCS is bound to the oligomer by means of an alkyl spacer comprising from 2 to 4 carbon atoms;

where the thiophene oligomer has an outer thiophene ring; and

where the NCS is attached in the  $\alpha$  position to the outer thiophene ring.

Claim 6 (canceled)

Claim 7 (currently amended): ~~Thiophene oligomers~~ A thiophene oligomer according to claim [[6]] 5, where the alkyl spacer is selected from the group consisting of  $\text{CH}_2\text{CH}_2\text{-}$  and  $(\text{CH}_3)_2\text{Si-CH}_2\text{-}$ .

Claims 8-18 (canceled)

Claim 19 (currently amended): ~~Thiophene oligomers~~ A thiophene oligomer excitable in the visible and ultraviolet light region comprising at least one functional NCS group able to form a covalent bond with one or more than one organic ~~molecules~~ molecule, biological ~~molecules~~ molecule or both;

where the NCS is bound to the oligomer by means of an alkyl spacer comprising from 2 to 4 carbon atoms;

where the thiophene oligomers have an outer thiophene ring; and

where the thiophene oligomer has an outer thiophene ring; and

where the NCS is attached in the  $\alpha$  position to the outer thiophene ring.

Claim 20 (canceled)

Claim 21 (currently amended): ~~Thiophene oligomers~~ A thiophene oligomer according to claim [[20]] 19, where the alkyl spacer is selected from the group consisting of  $\text{CH}_2\text{CH}_2$ - and  $(\text{CH}_3)_2\text{Si-CH}_2$ -.

Claim 22 (currently amended): A method of detecting ~~molecules~~ one or more than one molecule comprising:

- a) providing ~~thiophene oligomers~~ a thiophene oligomer according to claim 19;
- b) covalently bonding the thiophene ~~oligomers~~ oligomer to the ~~molecules~~ one or more than one molecule; and
- c) detecting fluorescence of the bound thiophene ~~oligomers~~ oligomer.

Claim 23 (currently amended): The method of claim 22, where the ~~molecules~~ are one or more than one molecule is selected from the group consisting of proteins, polyclonal antibodies, fractions of polyclonal antibodies, monoclonal antibodies, fractions of monoclonal antibodies, nucleic acids, oligonucleotides, hormones, medicines, drugs, and non-proteic chemical neurotransmitters.

Claim 24 (currently amended): The method of claim 22, where detecting fluorescence comprises performing one or more than one procedure selected from the group consisting of spectrometry, spectrofluorimetry, flow and static cytometry, fluorescence microscopy and gel electrophoresis.

Claim 25 (currently amended): The method of claim 22, where the thiophene ~~oligomers~~ oligomer provided ~~comprise~~ comprises a plurality of thiophene oligomers with different emission frequencies, and where detecting fluorescence comprises simultaneously exciting the thiophene oligomers, through one or more than one emissive radiation source.

Claim 26 (previously presented): A conjugate comprising a thiophene oligomer according to claim 19 covalently bound to an organic molecule or to a biological molecule.